× 25, from Campana, Prov. Buenos Aires, Argentina, *Parodi* 11326; FIG. 1d, stipule, × 5, from 21691.

S. RAMOSA var. DIFFUSA: FIG. 1e, seed, × 25, from the TYPE, from Burruyacu, Prov. Tucuman, Argentina, *Venturi* 7722; FIG. 1f, sepals with capsule, × 5, from TYPE; FIG. 1g, stipule, × 5, from TYPE.

S. SPRUCEANA: FIG. 2a, sepals with capsule, × 5, from the TYPE, from the Andes of Ecuador, *Spruce* 5444; FIG. 2b, seed, × 25, from TYPE; FIG. 2c, stipule, × 5, from TYPE.

S. PLATENSIS: FIG. 3a, sepals with capsule, × 5. from Los Angeles, California, *Parry* 15, 1881; FIG. 3b, a papillose seed, × 25, from 15; FIG. 3c, a non-papillose seed, × 25, from Otay, Riverside Co., California, *Orcutt* 1201; FIG. 3d, stipule, × 5, from Rio Sali, Prov. Tucuman, Argentina, *Venturi* 1908.

S. PLATENSIS var. BALANSAE: FIG. 3e, sepals with capsule, × 5, from TYPE, from Paraguay, *Balansa* 2271; FIG. 3f, stipule, × 5, from TYPE.

S. COLLINA: FIG. 4a, sepals with capsule, × 5, from Mollendo, Prov. Islay, Peru, *A. S. Hitchcock* 22355; FIG. 4b, seed, × 25, from 22355; FIG. 4c, stipule, × 5, from 22355.

PLATE 596. S. GRANDIS: FIG. 1a, sepals with capsule, × 5, from San Jose, Prov. Santa Catharina, Brazil, *Ule* 472; FIG. 1b, seed, × 25, from 472; FIG. 1c, stipule, × 5, from 472.

S. LEVIS: FIG. 2a, sepals with capsule, × 5, from Montevideo, Uruguay, *Sello*, October 22; FIG. 2b, seed, × 25, from Concepcion del Uruguay, Prov. Entre Rios, Argentina, *Lorentz*, October, 1875; FIG. 2c, stipule, × 5, from Montevideo, Uruguay, *Gibert*, October, 1858.

S. RUPESTRIS: FIG. 3a, sepals with capsule, × 5, from Montevideo, Uruguay, *Sello* d394; FIG. 3b, seed, × 25, from 394; FIG. 3c, stipule, × 5, from 394.

S. COLOMBIANA: FIG. 4a, sepals with capsule, × 5, from the TYPE, from Prov. Bogota, Colombia, *Triana*, 1851–1857; FIG. 4b, stipule, × 5, from the TYPE.

S. PAZENSIS: FIG. 5a, sepals with capsule, × 5, from Talca Chugiaguillo, Dept. La Paz, Bolivia, *Bang* 814; FIG. 5b, seed, × 25, from 814; FIG. 5c, stipule, × 5, from La Paz, Bolivia, *R. S. Williams* 2336.

POTENTILLA GRACILIS Dougl., var. **pulcherrima** (Lehm.), comb. nov. *P. pulcherrima* Lehm. Nov. Stirp. Pug. ii. 11 (1830).

I fail to find in *P. pulcherrima* any specific characters to separate it from *P. gracilis*. In its best development it is distinguished by the heavy white tomentum of the lower leaf-surfaces and by the shorter and more approximate teeth. It seems to be one end of a series, of which *P. gracilis*, var. *rigida* (Nutt.) Wats. (*P. Nuttallii* Lehm.) is at the other. Although Wolf, Mon. Gen. Pot. (1908), followed Rydberg in keeping the three apart, it is noteworthy that in his key and diagnoses he could state only the difference in degree of pubescence and of marginal toothing, specially noting (p. 209) that *P. pulcherrima* is very close to *P. gracilis*.—M. L. FERNALD.

DETERMINATION OF AMPHICARPA, STROPHOSTYLES, GALACTIA AND APIOS BY VEGETATIVE CHARACTERS.—Sterile trifololiate forms of *Apios americana* are often confused with species of *Strophostyles*, *Amphicarpa*, and *Galactia*, and the latter three genera are frequently mis-

understood. Certain specimens in each of the four genera at times superficially approach one another in gross similarity, and are likely to be mistaken in the field or herbarium.

The writer has found certain of the following vegetative characters helpful in identifying these genera in the sterile condition.

	APIOS	STROPHOSTYLES	AMPHICARPA	GALACTIA VOLUBILIS and VARIETIES
Main stipule at base of petiole.	Linear-setaceous, 1-nerved.	Ovate, lanceolate, 1–3, or 5–7-nerved.	Ovate, 10–12-nerved.	Linear-setaceous, 1-nerved.
Lateral stipule at base of petiolule.	Setaceous, conspicuous, 1-nerved	Oblong-spatulate, lanceolate-oblong, conspicuous, 3-nerved.	Ovate, conspicuous, 3-nerved.	Setaceous, inconspicuous, 1-nerved.
Apex of leaves.	Acute to acuminate.	Obtuse to acutish.	Acute.	Obtuse.
Lowest pair of lateral nerves at base of leaflet.	Inconspicuous.	Conspicuous. Mostly parallel to the curving margins of the leaflets.	Conspicuous. Mostly straight and upwardly divaricate, not parallel to the margins of the leaflets.	Inconspicuous.
Tuberous enlargements.	Large.	None.	Slight.	Slight.
Hairs on stems.	Retrorse.	Retrorse.	Retrorse.	Ascending.

They may be keyed out as follows:

a. Stipule at base of petiole setaceous....*b.*
  b. Leaves acute to acuminate at apex.....*Apios americana.*
  b. Leaves obtuse or rounded at apex.....*Galactia volubilis* and varieties.
a. Stipule at base of petiole ovate, lanceolate, or oblong-lanceolate....*c.*
  c. Stipule at base of petiole 1–3- or 5–7-nerved; stipule at base of petiolule spatulate, oblong-spatulate, or oblong-lanceolate; no underground tuberous enlargement; 2 lateral nerves at base of leaflet arching parallel to margin of leaflet.....*Strophostyles.*
  c. Stipule at base of petiole 10–12-nerved; stipule at base of petiolule ovate or broadly lanceolate; slight underground tuberous enlargement; 2 lateral nerves at base of leaflet not arching parallel to margin of leaflet, but directed straight and more divaricate.....*Amphicarpa.*

In his Leguminous Plants of Wisconsin, Dr. Fassett brings out a further difference between *Strophostyles* and *Amphicarpa*, i. e., in *Amphicarpa* the midrib is prolonged at the tip of the leaf-blade into a minute bristle, whereas in *Strophostyles* it is not prolonged. This

difference accounts for the leaves of *Amphicarpa* usually appearing acute at the apex, whereas those of *Strophostyles* appear obtuse or only acutish.—JULIAN A. STEYERMARK, Field Museum of Natural History, Chicago, Illinois.

SPRING FLORA OF MISSOURI.—In his new "Spring Flora of Missouri,"[1] which treats some fourteen hundred flowering plants in blossom by June first, Dr. Julian A. Steyermark has brilliantly succeeded in combining simplified terminology with precise scientific accuracy and authoritativeness. Though he dismisses the Gramineae, Cyperaceae and Juncaceae with brief mention, Dr. Steyermark points out that these groups of plants are to form the basis of a future publication devoted exclusively to them.

Written particularly for all persons interested in flowering plants, the book is well printed, with few typographical errors, on an excellent grade of paper and is bound in a durable buckram. Though designed to include the spring flora of neighboring states, as well as of Missouri, its use would seem to be restricted primarily to the latter, especially since distribution data for each species are given for Missouri alone. From a teacher's point of view, the utility of the book would have been further enhanced by brief mention, if only by means of abbreviations, of the North American range of each species. Along with the concise, non-technical descriptions of each species, Dr. Steyermark has occasionally included information regarding poisonous properties, and, in the case of dermatitis caused by Poison Ivy, he has even suggested detailed remedies. Such added notes serve to make the book of greater value and interest to the layman.

The non-technical keys to such difficult families of plants as the Umbelliferae, wherein dependence upon mature fruit-characteristics has been heretofore an almost universal practice, are constructed upon simpler but, perhaps, as equally accurate leaf- and inflorescence-characters. Whenever it has been necessary to use a convenient technical term, an accompanying diagram often serves to make the meaning clear. Furthermore, a short glossary of the relatively few scientific terms employed is provided at the back of the book. Adjacent to the glossary of terms there is an interesting list of "English Meanings of Scientific Species Names," a feature which, for the average layman or college student, should add much to an understanding of taxonomic nomenclature, especially since a knowledge of Latin and Greek is no longer a foundation-stone of education. Besides the diagrams illustrating technical terms, the keys are replete with line-drawings which add significantly to the general usage of the book.

Apparently as a result of employing several artists for illustrating the book, there is a pronounced lack of uniformity in styles of drawing. For example, on Plate 100, page 365, *Viola cucullata* is drawn

[1] STEYERMARK, J. A. *Spring Flora of Missouri.* vii. and 582 pp. Published by the Missouri Botanical Garden (St. Louis) and the Field Museum of Natural History (Chicago). Set up and printed by the Ovid Bell Press, Fulton, Mo. 1940.